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QUICK-DONNING BREATHING MASK

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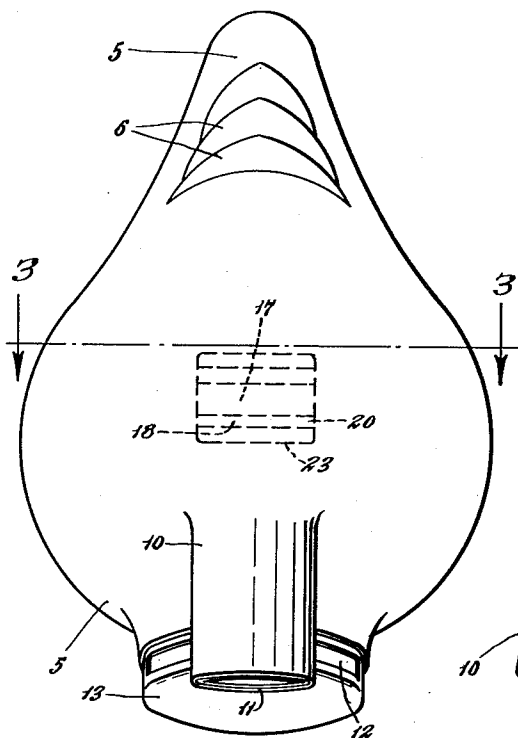


Fig. 1.

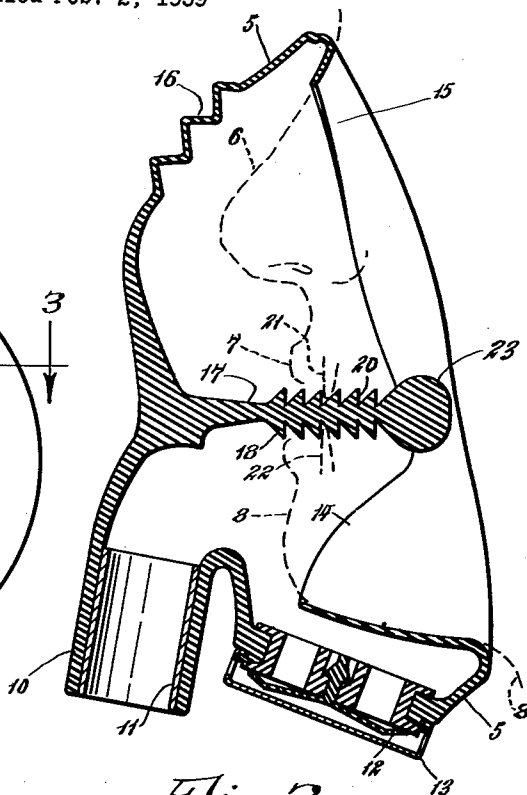


Fig. 2.

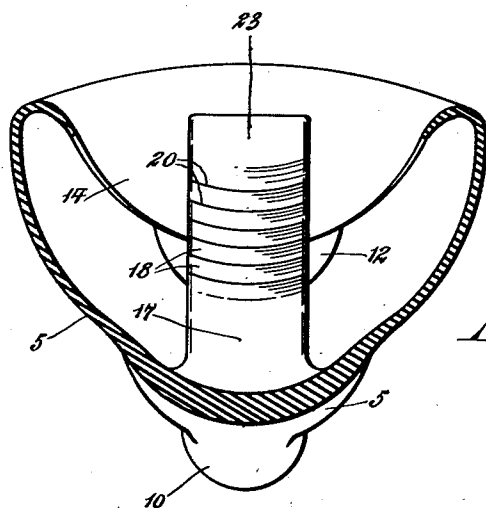


Fig. 3.

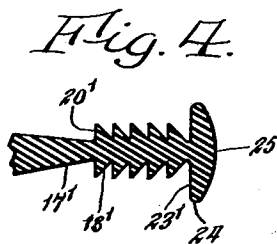


Fig. 4.

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QUICK-DONNING BREATHING MASK

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This invention relates to a breathing mask for covering a portion of a person's face so that he can inhale pure air and/or oxygen without contamination or inadequacy of the ambient atmosphere.

The principal object of the invention is to provide a breathing mask which can be almost instantly clapped onto a person's face in a sudden emergency such as occurs when a pressurized airplane suddenly loses its pressurization. Other objects of the invention and practical solutions thereof are to be found in the following description and in the accompanying drawings, wherein:

FIG. 1 is a front elevation of one form of my quick-donning breathing mask.

FIG. 2 is a vertical medial section thereof.

FIG. 3 is a horizontal section thereof taken on line 3—3, FIG. 1.

FIG. 4 is a fragmentary, vertical section through a modified form of mouth bit.

This invention will be described precisely as it has here been illustrated but it is to be very definitely understood that the scope of the invention is to be measured solely by its intrinsic novelty and by the scope of the appended claims.

Referring first to FIGS. 1—3, inclusive, the numeral 5 indicates an oro-nasal, breathing mask which is molded from rubber or similar material in such manner as to make it quite firm in shape but nevertheless yieldable in character. This breathing mask body 5 is adapted to fit over the nose 6 and mouth 7 of a person's face as indicated by the dotted lines 8 of FIG. 2.

This mask body or "half mask" 5 is adapted to be clapped almost instantly upon the face of a person in an emergency, and the primary consideration of the present invention is to hold said breathing mask body 5 upon said person's face for a certain length of time without requiring the use of his hands or mask straps to effect this result.

This mask body 5 is provided with the usual inlet duct 10, preferably provided interiorly with a metal stiffening tube 11 so that the usual corrugated inhalation tube (not shown) may be tightly clamped around the outer surface of said inlet duct 10. Said mask body 5 is also provided with a rubber exhalation valve 12 protected exteriorly with a perforated metal protection cap 13. A resilient chin flap 14 and a resilient cheek flap 15 are also provided to prevent undue escape of breathing fluid into the ambient atmosphere when the mask body 5 is provided with breathing fluid under "positive" or super ambient pressure. Also, said mask body 5 is preferably provided with accordian pleats 16 to enable the mask body 5 to hermetically seal itself against the foreheads of persons of variable size and contour.

Formed integrally with the mask body 5 and projecting rearwardly therefrom is a stiff but relatively soft mouth bit 17 which is adapted to be received within a person's mouth and to be retained therein when the mask body 5 is in operative position, i.e., when he is inhaling breathing fluid from the inlet duct 10 and is exhaling through the exhalation valve 12.

This mouth bit 17 is provided with a plurality of serrations 18 which are of ratchet-tooth shape and, in this form of the invention, have their substantially vertical faces 20 positioned at the rear ends of their respective serrations, so that, when the person's teeth 21 and 22 grip said serrations 18, the entire mask body 5 is urged rearwardly against the person's face 8 and thus, by a

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wedging or inclined surface action, hold said mask body 5 firmly in place.

The extreme rear end of said mouth bit 17 is enlarged at 23 so that, if the person should start to accidentally separate his teeth 21 and 22, there will be less likelihood of the mouth bit 17 slipping completely out of his mouth.

These serrations 18 are of curvilinear shape when viewed in either top or bottom plan (see FIG. 3), with their convex sides positioned forwardly. The purpose of this is to have said serrations 18 conform to the curvilinear shape of a person's upper and lower set of incisors 21 and 22.

FIG. 4 shows a modified form of mouth bit 17 which is particularly of value to people with false teeth or who have partial dentures and who cannot comfortably grip the mouth bit 17 firmly with their teeth. It is to be noted, however, that this modified form of mouth bit 17 is also satisfactory in performance when used by people having strong biting incisors, because of the fact that the rearward positioning of the mask body 5 against the person's face 8 is of a resilient nature, so that said mask body can be moved a short distance forwardly, away from the person's face 8, without breaking the hermetic seal between his face 8 and the mask body 5.

In this modified form of the invention, it is the front faces 20 of the ratchet-shaped serrations 18 which are substantially vertical. This is so that the person using this form of the invention need not clench his teeth together tightly to hold the mask body 5 in place, but, instead, to only close his jaws sufficiently closely together to ensure that at least one of his teeth engage the front, substantially vertical surface 20 of one of the ratchet-shaped teeth 18. It should also be noted that this modified form of ratchet-shaped serrations 18 also tends to separate a person's teeth, if they happen to be too tightly closed, at the time when the mouth bit 17 is being suddenly thrust into the person's mouth 7 between his teeth 21 and 22.

In FIG. 4 is also shown a modified form of enlargement 23' at the rear end of the mouth bit 17 which enlargement is of button shape and has its periphery 24 thinner than its central part 25. This provides what might be termed a "cantilever" type of strength to the periphery 24 without requiring that this modified enlargement 23 be unnecessarily bulky.

It should be noted that when the mask body 5 is in operative position the person's breathing is not confined to his nose 6, but that he can, if he wishes, also breathe through his mouth by opening his lips while still more or less tightly holding said mask body 5 in position by means of his teeth 21 and 22.

I claim:

1. A quick-donning breathing mask comprising: a mask body adapted to be held tightly against the person's face so as to be hermetically sealed relatively thereto; and a mouth bit connected with said mask body and adapted to enter the mouth of the person donning the mask body and be positioned between the teeth of said person, said bit being provided with a plurality of transverse serrations on its upper surface whereby persons of differing dimensions can bite with their teeth into whatever particular serration is best adapted to hold the mask body snugly but comfortably on their particular faces.

2. A quick-donning breathing mask comprising: a mask body adapted to be held tightly against the person's face so as to be hermetically sealed relatively thereto; and a mouth bit connected with said mask body, and adapted to enter the mouth of the person donning the mask body and be positioned between the teeth of said person, said bit being provided with a plurality of transverse serrations on its lower surface whereby persons of differing dimensions can bite with their teeth into whatever particular

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serration is best adapted to hold the mask body snugly but comfortably on their particular faces.

3. A quick-donning breathing mask comprising: a mask body adapted to be held tightly against the person's face so as to be hermetically sealed relatively thereto; and a mouth bit connected with said mask body, and adapted to enter the mouth of the person donning the mask body and be positioned between the teeth of said person, said bit being provided with a plurality of transverse serrations on its upper and lower surfaces whereby persons of differing dimensions can bite with their teeth into whatever particular pair of serrations is best adapted to hold the mask body snugly but comfortably on their particular faces.

4. A quick-donning breathing mask as in claim 3 with the serrations being of ratchet-tooth shape.

5. A quick-donning breathing mask as in claim 3 with the serrations being curvilinear.

6. A quick-donning breathing mask as in claim 3 with the serrations being curvilinear and with their convex surfaces facing forwardly.

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7. A quick-donning breathing mask as in claim 3 with the mouth bit being substantially symmetrical and with its extreme rear end being of button shape.

8. A quick-donning breathing mask as in claim 3 with the mouth bit being substantially symmetrical and with its extreme rear end being in the shape of a button with the peripheral edges of said button being thinner than its central portion.

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